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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/070,690	03/08/2002	Yoshiyuki Hiraga	0020-496P	9308

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EXAMINER
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GRAY, JILL M

ART UNIT	PAPER NUMBER
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1774

DATE MAILED: 08/24/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	Application No. 10/070,690	Applicant(s) HIRAGA ET AL.	
	Examiner Jill M. Gray	Art Unit 1774	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 07 June 2004.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1,3 and 5-14 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1,3 and 5-14 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
     Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
     Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date. _____ | 6) <input type="checkbox"/> Other: _____  |

## DETAILED ACTION

### *Response to Amendment*

The rejection of claims 1 and 3-14 under 35 U.S.C. 103(a) as being unpatentable over Buckmaster, 5,093,409 is withdrawn in view of applicants' arguments.

### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1, 8, 11, 13, and 15 are rejected under 35 U.S.C. 102(b) as being anticipated by Schreyer, 3,085,083.

Schreyer teaches a fluorine-containing polymer comprising tetrafluoroethylene and hexafluoropropylene, wherein the hexafluoropropylene can be present in amounts ranging from 3-35% by weight and has a melt flow rate within applicants' range, per claims 1 and 8. See column 7, lines 39-43 and Table 1. The polymer is prepared by emulsion polymerization and is treated with potassium or sodium nitrites or sulfates to stabilize the polymer, as required by claims 11 and 15. See column 3, lines 25-47 and Example IV. Schreyer is silent as to the total content of alkali metal and alkali earth metal of his invention satisfying the specific formulas set forth in claims 1 and 13. However, he does teach at column 3, lines 51-53 and Table III wherein the concentration of the

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potassium or sodium may be as low as 5 ppm. It is noted that applicants' Examples in the specification discloses concentrations of 4 ppm, 6ppm and 10 ppm as being suitable. Because applicants' formulas 1 and 2 depend upon the melt flow rate, and Schreyer teaches a melt flow rate within the claimed range as well as concentrations of alkali and alkali earth metal as low as 5 ppm, it is the examiner's position that the general conditions for total content of alkali metal and alkali earth metal as required by formulas 1 and 2 are necessarily present in the composition of Schreyer and would be so recognized by persons of ordinary skill in the art. *In re Robertson*, 169 F.3d 743, 745, 49 USPQ2d 1949, 1950-51 (Fed. Cir. 1999). That Schreyer does not recognize the specific parameters of Formulas 1 and 2 does not preclude the clear finding of anticipation. *Atlas Powder Co. v. IRECO, Inc.*, 190 F.3d 1342, 1349, 51 USPQ2d 1943, 1948 (Fed. Cir. 1999).

Therefore, the teachings of Schreyer anticipate the invention as claimed in present claims 1, 8, 11, 13, and 15.

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over Schreyer 3,085,083, as applied above to claims 1, 8, 11, 13, and 15, in view of

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Buckmaster et al, 5,726,214 (Buckmaster) and Hartwimmer et al, 4,262,101 (Hartwimmer).

Schreyer is as set forth above but does not teach the inclusion of perfluoroalkyl vinyl ether. Buckmaster teaches melt fabricable fluoropolymers comprising copolymers of tetrafluoroethylene and one or more comonomers such as hexafluoropropylene, and perfluoroalkyl vinyl ether, wherein the comonomers are added to reduce the melting temperature of the copolymer below the melting temperature of the tetrafluoroethylene. In addition, Buckmaster teaches that TFE/HFP/PAVE fluoropolymers are well known in the art. See column 2, lines 5-27. Hartwimmer teaches terpolymers of tetrafluoroethylene, hexafluoropropylene, and perfluoroalkyl vinyl ether, wherein the terpolymers have improved mechanical properties over the copolymers, such as elongation at break, dimension stability and tensile stress. See column 12. It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the composition of Schreyer by including a perfluoroalkyl vinyl ether comonomer as taught by Buckmaster or Hartwimmer to reduce the melting temperature of the copolymer and thereby enhance the melt-processability of the resultant fluoropolymer as well as improving the mechanical properties of the polymer.

Claims 3, 5-7, 10, 12, 14 and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Schreyer 3,085,083 as applied above to claims 1, 8, 11, 13, and 15, in view of Kaulbach et al, 6,541,588 B1 (Kaulbach).

Schreyer is as applied above to claims 1, 8, 11, 13, and 15, thereby teaching the limitations set forth in claims 7, 12, 14, and 16, but does not teach the formation of an electric wire or cable. Kaulbach teaches melt processable tetrafluoroethylene/hexafluoropropylene copolymers that optionally contain a perfluoroalkyl vinyl ether as required by claims 6 and 10, wherein said copolymers are free of unstable end groups and are used to coat wire and cable conductors. See column 3, lines 12-20. In addition, said copolymer is prepared by emulsion polymerization, per claim 5. See column 4, lines 27-28. It should be noted that in claim 5, the language of "prepared by emulsion polymerization" is a process limitation in a product claim. Even though product-by-process claims are limited by and defined by the process, determination is based on the product itself. The patentability of a product does not depend on its method of production.

Though Schreyer is silent as to the specific utility of his composition in the formation of electric wire and cables, it is well known in the art that melt-processable tetrafluoroethylene/hexafluoropropylene copolymers have end-use properties such as chemical resistance, low flammability, thermal stability, and outstanding electrical properties that make these copolymers well suited for coating wire and cable conductors. Moreover, it is also known that the removal of unstable end-groups is required for processing said copolymers, in particular for utility as wire coatings. See Kaulbach, column 1, lines 9-26 and 60-61. That Schreyer is silent as to an electric wire or cable coated with his polymer is of no moment because "[s]ection 103 requires us to presume full knowledge by the

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inventor of the prior art in the field of his endeavor...in that respect, it only requires us to presume that the inventor would have the ability to select and utilize knowledge from other arts reasonably pertinent to his particular problem which would be expected of a man of ordinary skill in the art to which the subject matter pertains." *In re Antle*, 170 USPQ 285, 287 (CCPA 1971). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to use the composition of Schreyer as a coating on an electric wire or cable, motivated by the clear teachings of Kaulbach that melt-processable compositions of the type taught by Schreyer are well known as wire and cable coatings and the reasonable expectation of success of obtaining an electric wire or cable having outstanding electrical properties.

Therefore, the combined teachings of Schreyer and Kaulbach would have rendered obvious the invention as claimed in present claims 3, 5-7, 10, 12, 14, and 16.

Claims 1, 3, 5-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over European Patent Publication No. EP 0870,792 A1, (Bidstrup) in view of Kaulbach et al, 6,541,588 B1 (Kaulbach) as applied above to claims 3, 5-7, 10, 12, 14, and 16.

Bidstrup teaches fluoropolymer resin that is stabilized with a small amount of alkali metal nitrate. See abstract. The fluoropolymer resins are melt-fabricable copolymers of tetrafluoroethylene and at least one comonomer such as hexafluoropropylene and perfluoroalkyl vinyl ether, wherein the preferred copolymers include TFE/HFP/PAVE, as required by claims 1 and 6; and the

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perfluoroalkyl vinyl ether has the requisite formula as required by claims 9 and 10. See page 3, and lines 24-32. In addition, the fluoropolymers of Bidstrup have a melt viscosity within applicants' range as set forth in claims 1, 3, 13 and 14 and the amounts of tetrafluoroethylene and hexafluoropropylene are within applicants' range as set forth in claim 8. See page 3 and lines 21-23 and Example 1. The fluoropolymer can be produced by emulsion polymerization as required by claim 5. However, it should be noted that in claim 5, the language of "prepared by emulsion polymerization" is a process limitation in a product claim. Even though product-by-process claims are limited by and defined by the process, determination is based on the product itself. The patentability of a product does not depend on its method of production. Bidstrup teaches that the fluoropolymer can be stabilized by introducing an alkali metal nitrate into the resin, per claims 15 and 16, whereby the alkali metal is potassium or sodium, as required by claims 7, and 11-13, and wherein the alkali metal nitrate is used in a concentration in the range of 20-500 ppm. See page 3, lines 57-58 and page 4, lines 16-21. Bidstrup is silent as to the total alkali metal content satisfying the requirements of Formulas I and 2, as set forth in claims 1, 3, 13 and 14. Nevertheless, he does teach a melt flow rate within applicants' claimed range and alkali metal contents as low as 20 ppm. It is noted that applicants' Examples in the specification disclose that alkali metal contents of 10 ppm are suitable. It is the examiner's position that an alkali metal content of 20 ppm is sufficiently close to 10 ppm such that one of ordinary skill in the art would have expected the resultant composition to have the same properties. There is no factual



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evidence on this record that an alkali metal content of 20 ppm does not satisfy the requirement of Formulas 1 and 2, as set forth in claims 1, 3, 13 and 14.

As to claims 3, 5-7, 10, 12, 14, and 16, Bidstrup does not teach an electric wire or cable coated with his fluoropolymer. Kaulbach, as set forth previously, teaches melt processable tetrafluoroethylene/hexafluoropropylene copolymers that optionally contain a perfluoroalkyl vinyl ether as required by claims 6 and 10, wherein said copolymers are free of unstable end groups and are used to coat wire and cable conductors. See column 3, lines 12-20. In addition, said copolymer is prepared by emulsion polymerization, per claim 5. See column 4, lines 27-28. Though Bidstrup is silent as to the specific utility of his composition in the formation of electric wire and cables, it is well known in the art that melt-processable tetrafluoroethylene/hexafluoropropylene copolymers have end-use properties such as chemical resistance, low flammability, thermal stability, and outstanding electrical properties that make these copolymers well suited for coating wire and cable conductors. Moreover, it is also known that the removal of unstable end-groups is required for processing said copolymers, in particular for utility as wire coatings. See Kaulbach, column 1, lines 9-26 and 60-61. That Bidstrup is silent as to an electric wire or cable coated with his polymer is of no moment because "[s]ection 103 requires us to presume full knowledge by the inventor of the prior art in the field of his endeavor...in that respect, it only requires us to presume that the inventor would have the ability to select and utilize knowledge from other arts reasonably pertinent to his particular problem which would be expected of a man of ordinary skill in the art to which the subject

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matter pertains." *In re Antle*, 170 USPQ 285, 287 (CCPA 1971). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to use the composition of Bidstrup as a coating on an electric wire or cable, motivated by the clear teachings of Kaulbach that melt-processable compositions of the type taught by Bidstrup are well known as wire and cable coatings and the reasonable expectation of success of obtaining an electric wire or cable having outstanding electrical properties.

Therefore, the combined teachings of Kaulbach and Bidstrup would have rendered obvious the invention as claimed in present claims 1, 3 and 5-16.

No claims are allowed.

### ***Conclusion***

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jill M. Gray whose telephone number is 571-272-1524. The examiner can normally be reached on M-F 10:30-7:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Rena Dye can be reached on 571-272-3186. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Jill M. Gray  
Examiner  
Art Unit 1774

jmg